

**REMARKS**

In the Office Action, the Examiner rejected claims 1, 2, 8-10, 18, 20, and 22-24 under 35 U.S.C. § 102(b) as anticipated by HOLZAPFEL (U.S. Patent No. 4,413,905); and rejected claims 3-7, 11-17, 19 and 21 under 35 U.S.C. § 103(a) as unpatentable over HOLZAPFEL. Applicant respectfully traverses these rejections. Claims 1-24 remain pending.

Claims 1, 2, 8-10, 18, 20, and 22-24 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by HOLZAPFEL. Applicant respectfully traverses.

Independent claim 1 recites a method for measuring a length in an interferometer. The method includes generating radiation having a known wavelength profile, amplifying the radiation to produce amplified radiation, producing an interference pattern, and calculating one or more lengths within the interferometer using the measured interference pattern.

A proper rejection under 35 U.S.C. § 102 requires that a reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. See M.P.E.P. § 2131. HOLZAPFEL does not disclose or suggest the combination of features recited in claim 1.

For example, HOLZAPFEL does not disclose or suggest calculating one or more lengths within the interferometer using a measured interference pattern. The Examiner relied on element 23 in Fig. 2 of HOLZAPFEL for allegedly disclosing this feature (Office Action, pg. 2). Applicant submits that this element does not correspond to the above-identified feature of Applicant's claim 1.

Fig. 2 of HOLZAPFEL illustrates a block diagram of a laser range meter. As illustrated in Fig. 2, element 23 is a differential amplifier. HOLZAPFEL discloses differential amplifier 23 receiving signals from low pass filters 20 and 40 (see Fig. 2). HOLZAPFEL also discloses that when the optical paths in the reference channel are identical and the delay provided by time delay element 5 is equal to the round trip travel time of the measuring pulse, the output of differential amplifier 23 is at a minimum, indicating that the delay time at time delay element 5 is proportional to the target range (col. 7, lines 6-15). Contrary to the Examiner's position, HOLZAPFEL does not disclose or suggest that differential amplifier 23 calculates one or more lengths within the interferometer using a measured interference pattern, as required by claim 1. If this rejection is maintained, Applicant requests that the Examiner specifically point out where in HOLZAPFEL this feature is disclosed.

Since HOLZAPFEL does not disclose the features of claim 1 either expressly or impliedly, the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by HOLZAPFEL is improper.

For at least the foregoing reasons, Applicant submits that claim 1 is not anticipated by HOLZAPFEL.

Claims 2, 8, and 9 depend from claim 1. Therefore, these claims are not anticipated by HOLZAPFEL for at least the reasons given above with respect to claim 1. Moreover, these claims recite additional features not disclosed by HOLZAPFEL.

For example, claim 9 recites that the calculating includes interpolating between zero crossings of the interference pattern. The Examiner relied on lines 48-56 of

HOLZAPFEL for allegedly disclosing this feature (Office Action, pg. 2). The Examiner failed, however, to identify the column on which the Examiner relies. Upon reading HOLZAPFEL, it appears that the Examiner is relying upon lines 48-56 in column 5 of HOLZAPFEL for allegedly disclosing the feature of Applicant's claim 9. Applicant submits that neither this section of HOLZAPFEL nor any other section of HOLZAPFEL discloses or suggests the feature of claim 9.

Col. 5, lines 48-57, of HOLZAPFEL discloses:

As noted, the detector output signal reaches its maximum when the time differential between the measuring and reference pulses reaches zero. The signal current decreases rapidly with increasing time differential. In the case of TPF and SHG-I detection, the minimum level corresponds to double the radiation intensity of the reference pulse. In the case of SHG-II detection, the minimum level is zero. Thus, the contrast ratio (i.e., the difference between maximum and minimum detector output signals) is better using SHG-II detection.

This section of HOLZAPFEL discloses that the output of a photodetector is at a maximum when the time differential between a measuring pulse and reference pulse reaches zero. This section of HOLZAPFEL does not disclose or suggest calculating one or more lengths within an interferometer by interpolating between zero crossings of the interference pattern, as required by Applicant's claim 9. In fact, this section of HOLZAPFEL in no way relates to interpolating between zero crossings of an interference pattern.

For at least these additional reasons, Applicant submits that claim 9 is not anticipated by HOLZAPFEL.

Independent claims 10 and 20 recite a feature similar to that recited in claim 1. Therefore, claims 10 and 20 are not anticipated by HOLZAPFEL for reasons similar to those given above with respect to claim 1.

Claim 18 depends from claim 10. Therefore, this claim is not anticipated by HOLZAPFEL for at least the reasons given above with respect to claim 10.

Claims 22-24 depend from claim 20. Therefore, these claims are not anticipated by HOLZAPFEL for at least the reasons given above with respect to claim 20. Moreover, these claims recite features similar to those described above with respect to claims 8 and 9. Therefore, claims 22-24 are further not anticipated by HOLZAPFEL for reasons similar to those given above with respect to claims 8 and 9.

Claims 3-7, 11-17, 19, and 21 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over HOLZAPFEL. Applicant respectfully traverses.

Claim 3-7, 11-17, and 19 and 21 depend from claims 1, 10, and 20, respectively. These claims are, therefore, patentable over HOLZAPFEL for at least the reasons given above with respect to the claims 1, 10, and 20. Moreover, these claims are patentable over HOLZAPFEL for reasons of their own.

For example, claim 3 recites emitting noncoherent radiation and focusing the noncoherent radiation. The Examiner admitted that HOLZAPFEL does not disclose this feature (Office Action, pg. 3). The Examiner alleged, however, that noncoherent light sources are notoriously well known in the art and that "it would have been obvious to one of ordinary skill ... to include such a light source and a lens with which to focus it in the distance measuring interferometer of Holzapfel" (Office Action, pg. 3). The Examiner's

allegation is merely conclusory. The Examiner fails to explain why one skilled in the art would have been motivated to incorporate emitting noncoherent radiation and focusing the noncoherent radiation, as required by Applicant's claim 3, into the HOLZAPFEL system. Since the Examiner has failed to provide any objective motivation as to why one skilled in the art would have incorporated the features of claim 3 into the HOLZAPFEL system, a *prima facie* case of obviousness has not been established with respect to claim 3.

For at least these additional reasons, Applicant submits that claim 3 is patentable over HOLZAPFEL.

Claim 4 recites filtering the noncoherent radiation to obtain wavelengths within a spectral band. The Examiner relied on element 12 in Fig. 3 of HOLZAPFEL for allegedly disclosing this feature. Applicant disagrees.

While element 12 in Fig. 3 of HOLZAPFEL does appear to correspond to a filter, Applicant submits that filter 12 does not filter noncoherent radiation to obtain wavelengths within a spectral band, as required by claim 4. As set forth above, the Examiner admitted that HOLZAPFEL does not disclose emitting noncoherent radiation. Therefore, it is unclear how the Examiner can reasonably allege that HOLZAPFEL's filter 12 filters noncoherent radiation to obtain wavelengths within a spectral band, as required by claim 4. If this position is maintained, Applicant requests that the Examiner point out where in HOLZAPFEL it is disclosed that filter 12 filters noncoherent radiation to obtain wavelengths within a spectral band, as required by claim 4.

For at least these additional reasons, Applicant submits that claim 4 is patentable over HOLZAPFEL.

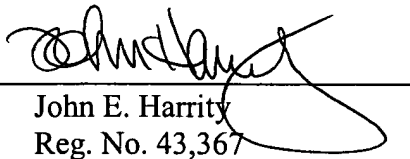
Similar comments to those set forth above with respect to claim 3 can be made for Applicant's claims 5-7, 11-17, 19, and 21. The Examiner has failed to establish a *prima facie* case of obviousness by failing to explain why one skilled in the art would have been motivated to incorporate the features recited in these claims into the HOLZAPFEL system. Without proper motivation, the rejection of these claims cannot be maintained.

In view of the foregoing remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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